

WHAT IS CLAIMED IS

1. A method for controlling access via a personalised portable object to a determined space via wireless transmission of an encoded identification signal, electronic means, which include access control means connected to signal reception means and/or transmission means, provided in the space, and the portable object
- 5 including a processing unit connected to signal transmission means and/or reception means, the method including steps of:
  - transmitting an encoded identification signal via the transmission means of the portable object or respectively via the transmission means provided in the determined space,
- 10 - receiving the encoded identification signal via the reception means provided in the space or respectively via the reception means of the portable object, when the object is in a restricted zone around electronic means provided in the space, and
  - verifying the encoded signal in the access control means or respectively in the processing unit for authorising access to the space,
- 15 wherein the transmitted and received encoded identification signal includes an analogue signature defined by at least one amplitude variation of the encoded signal envelope, said analogue signature being specific either to the electronic means provided in the space, or to the portable object, or to the pair formed by the personalised portable object and the electronic means provided in the space so as to
- 20 authorise access to the space if said signature is recognised.

2. The method according to claim 1, wherein the amplitude variation defining the analogue signature is obtained by an over-modulation of the encoded signal envelope.
3. The method according to claim 1, wherein the encoded identification signal is defined by a binary data sequence obtained by amplitude modulation of the signal with a determined carrier frequency, each binary element of the sequence being defined over a time period greater than the inverse of the carrier frequency, and wherein each binary element takes the value 1, respectively 0, when the envelope amplitude level of the encoded signal binary element is greater, or respectively less
- 25 than a determined threshold level.
- 30 4. The method according to claim 3, wherein an amplitude over-modulation of the encoded signal envelope is applied to the binary elements of the data sequence corresponding to the value 1 by the envelope amplitude rise or fall of the series of said binary elements of the sequence, or by several envelope amplitude variations of said

binary elements with a value of 1, and wherein the amplitude level of the envelope of the encoded signal for a binary element corresponding to the value 0 is close to 0.

5. The method according to claims 1 or 3, wherein analogue signature transmitted and received in the encoded identification signal is defined as a function of
- 5 an encoded signal envelope amplitude rise time and/or fall time at the beginning or the end of the encoded signal, or as a function of an encoded signal envelope amplitude rise and/or fall time from the passage between two binary elements of different value of the data sequence, the amplitude variation during the rise and/or fall time being linear or hyperbolic or random.
- 10 6. The method according to claim 1, for controlling access by a personalised portable object, such as an electronic key, to a vehicle so as to control the locking or unlocking of parts or functions of the vehicle, the method being wherein it includes the steps of:
  - transmitting via transmission means of the vehicle a first encoded signal
- 15 defined as an interrogation signal with an analogue signature specific to the pair formed by the personalised object and the vehicle,
  - receiving the interrogation signal via reception means of the object, when the object is located in a restricted zone around the transmission means of the vehicle,
  - comparing the received analogue signal with a reference signature stored in
- 20 the processing unit of the object,
  - calculating a second encoded signal defined as a response signal in the processing unit of the object if the specific analogue signal is recognised, and
  - transmitting the response signal so as to command the locking or unlocking of parts or functions of the vehicle.
- 25 7. The method according to claim 6, wherein an analogue signal specific to the pair formed by the vehicle and the personalised portable object is transmitted with the first and second encoded signals.
8. The method according to claim 1, wherein a received signal strength indicator for the encoded signal envelope, provided in the reception means of the
- 30 object, such as an electronic key, or the space, such as a vehicle, supplies dynamic amplitude values for the encoded signal envelope to the control means or to the processing unit to compare the received analogue signature with a stored reference signature.
9. The method according to claim 8, wherein the processing unit of the
- 35 object and/or the control means of the space include an analogue-digital converter, a signal processing micro-controller and storage means that include, in particular, a ciphering algorithm and a reference signature, wherein the amplitude values provided

by the indicator are digitalised by the analogue-digital converter, wherein the converter clocked by a clock signal supplies digitalised amplitude values for the received encoded signal envelope to the micro-controller, and wherein the micro-controller carries out a comparison between the digitalised amplitude values with the amplitude values of the stored reference signature.

10. A personalised portable object for implementing the method according to claim 1, the object comprising a processing unit connected to signal transmission means and/or reception means, wherein the processing unit is arranged to control the transmission means and/or the reception means for the transmission and/or reception of an encoded identification signal with an analogue signature, which is defined by at least one amplitude variation of the encoded signal envelope, said analogue signature being specific either to the electronic means provided in the space, or to the portable object, or to the pair formed by the object and the electronic means provided in the space to be accessed, such as a vehicle.

15. 11. The object according to claim 10, wherein it includes high frequency signal transmission means and low frequency signal reception means, and wherein the reception means include a received signal strength indicator for the received encoded signal envelope to provide dynamic amplitude values for the encoded signal envelope to the processing unit to compare the received analogue signature with a reference signature stored in storage means of the processing unit.

12. The object according to claim 11, wherein the processing unit includes an analogue-digital converter for digitising the amplitude values provided by the indicator, and a signal processing micro-controller for comparing the digitalised amplitude values provided by the converter with amplitude values of the stored reference signature.

13. The object according to claim 10, wherein the object is an electronic key with electric power supply means for the integrated electronic components, the supply means including a battery or an accumulator or photo-voltaic cells or an oscillating weight generator.